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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KARL J. WOOD, RICHARD J. ALLEN, and
CEES VAN BERKEL

Appeal 2009-002250
Application 10/077,062
Technology Center 2600

Decided:[1] July 29, 2009

Before KENNETH W. HAIRSTON, MARC S. HOFF, and
THOMAS S. HAHN, *Administrative Patent Judges*.

HAIRSTON, *Administrative Patent Judge*.

DECISION ON APPEAL

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134 from a final rejection of claims 1 to 3, 5 to 7, 9 to 14, 16 to 18, 20, and 22. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

The Invention

Appellants' claimed invention is directed to a method and apparatus for producing a stereoscopic image, and also to a computer program product for executing the method.[2] The apparatus may include a display and a single user control or controller, and/or a plurality of lenticules overlaying the display in the form of a lenticular sheet.[3] The user control adjusts two stereoscopic parameters (such as X-axis adjustment or Z-axis adjustment) and may be a knob, slide, remote control, icon, or software.[4] The adjustments may take into account the distance between a user's eyes.[5]

Claim 1 is representative of the claims on appeal, and reads as follows:

> 1. An apparatus for producing a stereoscopic image comprising:
>
> display means for displaying two sub-images spaced from one another at a first distance along an X-axis and a second distance along a Z-axis so as to render the stereoscopic image; and
>
> a single user control for adjusting the first and second distances of the stereoscopic image displayed by the display means, wherein at least the first distance of the stereoscopic

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[2] *See* Spec. 1:5-9, 2:16-28; Abstract; Fig. 1; claims 1, 13, 18, 22.
[3] *See* Spec. 5:4 to 6:14; Figs. 3, 4; claim 22.
[4] *See* Spec. 3:10-13, 17-21, 4:24-25; Figs. 1, 2.
[5] Spec. 2:10-12; *see* claims 1, 13.

image displayed on the display means is adjusted to correspond to a distance between eyes of a user.

The Rejections

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Shapiro	US 5,777,720	July 7, 1998
Starks	US 6,108,005	Aug. 22, 2000
Uchiyama	US 6,760,020 B1	July 6, 2004 (filed Mar. 12, 1999)
Lemelson	US 6,816,158 B1	Nov. 9, 2004 (filed Oct. 30, 1998)

(1) The Examiner rejected claims 1 to 3, 9, 10, 12 to 14, 16, 17, 20, and 22 under 35 U.S.C. § 102(b) as being anticipated based upon the teachings of Shapiro.

(2) The Examiner rejected claim 18 under 35 U.S.C. § 103(a) based upon the teachings of Shapiro.

(3) The Examiner rejected claims 5, 7, and 11 under 35 U.S.C. § 103(a) based upon the teachings of Shapiro and Lemelson.

(4) The Examiner rejected claim 6 under 35 U.S.C. § 103(a) based upon the teachings of Shapiro and Lemelson, and further in view of Uchiyama.

All of the Examiner's rejections rely on Shapiro as teaching a single user control for adjusting stereoscopic parameters including adjustments which take into account the distance between a user's eyes (Ans. 3-4).

ISSUES

Appellants contend that Shapiro fails to teach limitations common to all of the independent claims for a single user control (Br. 5-9). Appellants

contend that Shapiro uses a processor to automatically adjust stereoscopic parameters such as position, and, therefore, the user is not allowed to make any adjustment (i.e., there is no user input) (Br. 6). Appellants assert that Shapiro's user must accept the processor's adjustment, and the user cannot make any adjustments or changes (Br. 7).

The issues before us concern whether or not Shapiro teaches or suggests a *single user control* for adjusting two stereoscopic parameters including a parameter based on a distance between the eyes of a user, as set forth in varying degrees in the claims on appeal.[6] The issues presented are whether Appellants have shown that the Examiner erred in rejecting each of claims 1 to 3, 9, 10, 12 to 14, 16, 17, 20, and 22 under § 102(b), and as a result thereby also erred in rejecting each of claims 5 to 7, 11, and 18 under § 103(a). These issues turn on whether Shapiro teaches the limitations of (i) "a single user control" (claim 1), (ii) "a user input via a single control" (claim 13), and (iii) "a user controller" (claim 22) as set forth in the claims on appeal.

FINDINGS OF FACT

The findings of fact (FF) throughout this decision are supported by a preponderance of the evidence of record.

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[6] Independent claim 1, and each of dependent claims 2, 3, 5 to 7, and 9 to 12, by virtue of their ultimate dependency from claim 1, recites "a *single user control*" (claim 1 (emphasis added)). Independent claim 13, and each of dependent claims 14, 16 to 18, and 20, by virtue of their ultimate dependency from claim 13, recites "controlling . . . in response to a *user input* via a *single control*" (claim 13 (emphasis added)). Independent claim 22 recites "*a user controller*" (claim 22 (emphasis added)).

Appellants' Disclosure

1. As indicated *supra*, Appellants describe and claim a method and apparatus for producing a stereoscopic image (Fig. 1) having a single user control such as a knob 108, icon 110, or remote control 112 (*see* Spec. 1:4 to 2:12, 3:8-21; claims 1, 5-7). The user control 108 allows for adjustment of stereoscopic parameters such as depth and perceived position, and can take into account the distance between a user's eyes (Spec. 4:1-28, 2:10-12; claims 1, 13). The apparatus may also be autostereoscopic, using a lenticular sheet 15 with plural parallel lenticules 16 which are transverse to a display 10/12/14 (Spec. 5:4 to 6:14; Figs. 3, 4; claim 22).

2. Appellants describe the user control means as including a knob, slide, remote control, icon, or software (*see* Spec. 3:10-13, 17-21, 4:24-25; Figs. 1, 2). Appellants' Specification describes the user control as follows:

> A knob (rotary control) 108 and an icon 110 are provided and either or both of these operate as user control means for controlling one or more stereoscopic parameters of the image shown by the display 102.
>
> When a user is viewing the stereoscopic image, if there is any problem, such as the user feeling uncomfortable with the image displayed, or the user is having difficulty seeing the three dimensional effect [sic], they can adjust the stereoscopic parameters with the knob 108. The user control means need not be in a hardware form, it could be implemented in software and therefore take the form of an icon 110 which a user can adjust via, for example, a keyboard (not shown). A remote control 112 could be used by the viewer as a remote device for communicating with the user control means.

(Spec. 3:10-21). "The knob could be any simple mechanical control such as a slide or the like" (Spec. 4:24-25).

Shapiro

3. Shapiro describes a method and apparatus for producing a stereoscopic image (Figs. 1-3, 7, 10, 12a, 12b, 20, 21) having a single user control (data processor 50, controller 16, camera 37, and/or image analyzer 38).

4. Shapiro describes a user control, which automatically adjusts X-axis and Z-axis distances for rendering a stereoscopic image (col. 5, ll. 30-38; col. 7, ll. 7-12; col. 11, l. 11 to col. 12, l. 20), and makes adjustments to correspond to a distance between the eyes of a user 10 (*see* distances "a" and "b" in Figs. 12a, 12b, respectively).

5. Shapiro describes an autostereoscopic device (Figs. 13, 16, 18, 20), which uses a lenticular sheet 31/62 with plural parallel lenticules, which are transverse to a display (LCD 5 and display 60) (col. 13, ll. 29-38).

6. Shapiro describes one embodiment including manual user control switches 18 and 19 (Fig. 2) for manually permitting user control of a calibration mode to perform calibration of the stereoscopic image producing apparatus (col. 6, l. 44 to col. 7, l. 35). Shapiro describes another embodiment (Figs. 7 and 8) which uses a manually or automatically movable calibration target sheet 35 for calibrating the system of Figure 7 using the method shown in Figure 8 (col. 8, l. 63 to col. 9, l. 42). The sheet 35 simulates a user's eye positioning and may be moved "manually by an operator or by a robot arrangement" (*see* col. 9, ll. 15-16).

PRINCIPLES OF LAW

Anticipation

Analysis of whether a claim is patentable over the prior art under 35 U.S.C. § 102 begins with a determination of the scope of the claim. We determine the scope of the claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction in light of the specification as they would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004); *In re Morris*, 127 F.3d 1048, 1053-54 (Fed. Cir. 1997). "[T]he specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (citations omitted).

Anticipation is established when a single prior art reference discloses expressly or under the principles of inherency each and every limitation of the claimed invention. *Atlas Powder Co. v. IRECO Inc.*, 190 F.3d 1342, 1347 (Fed. Cir. 1999); *In re Paulsen*, 30 F.3d 1475, 1478-79 (Fed. Cir. 1994). "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987).

Obviousness

Appellants have the burden on appeal to the Board to demonstrate error in the Examiner's position. *See In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006). The Examiner bears the initial burden of presenting a prima facie case of obviousness, and Appellants have the burden of

presenting a rebuttal to the prima facie case. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

The test for obviousness is what the combined teachings of the references would have suggested to the artisan. Accordingly, one can not show nonobviousness by attacking references individually where the rejection is based on a combination of references. *In re Keller*, 642 F.2d 413, 426 (CCPA 1981).

Broadly providing an automatic way to replace a manual activity, which accomplished the same result, is not sufficient to distinguish over the prior art. *In re Venner*, 262 F.2d 91, 95 (CCPA 1958); *Leapfrog Ent., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1161 (Fed. Cir. 2007) ("Applying modern electronics to older mechanical devices has been commonplace in recent years."). An improved product in the art is obvious if that "product [is] not [one] of innovation but of ordinary skill and common sense." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007).

ANALYSIS

Claim Construction

Claim terms should be given their broadest reasonable meaning in their ordinary usage as such claim terms would be understood by one skilled in the art by way of definitions and the written description. *Morris*, 127 F.3d at 1054. At issue in the instant case are the meanings of the terms "single user control," "single control" having "user input," and "user controller" as used in the claims on appeal (claims 1, 13, and 21, respectively).

One of ordinary skill in the art would interpret the claimed user controller in light of the Specification. *See supra Phillips,* 415 F.3d at 1315.

Appellants disclose that the user control means or user controller may be a rotary control knob and/or icon (Spec. 3:10-12), a remote control (Spec. 3:20-21), or even a simple mechanical control like a slide (Spec. 4:24-25). More specifically, Appellants provide a description of "user control means" at page 3 of the Specification (FF 2). "The user control means need not be in a hardware form, *it could be implemented in software* . . ." (Spec. 3:17-18 (emphasis added); FF 2).

Thus, we do not agree with Appellants that the Examiner has improperly construed the terms "single user control," "single control" having "user input," and "user controller" (*see generally* Br. 5-9). Instead, we conclude that these terms as set forth in claims 1, 13, and 22 on appeal broadly encompass software or a program operated by a processor or controller as taught by Shapiro (*see* FF 3, 4), and as supported by Appellants' Specification at page 3 (*see* FF 2).

We now turn to the anticipation and obviousness rejections.

Anticipation

Turning first to the anticipation rejection based upon the teachings of Shapiro, we find that Shapiro, like Appellants, describes an autostereoscopic image producing method and apparatus including a single user control for adjusting stereoscopic parameters (FF 1, 3-5). As discussed *supra*, Shapiro teaches a single user control, a user input to a single control, and a user controller as set forth, respectively, in claims 1, 13, and 22 (FF 3, 4).

Thus, Appellants' arguments (Br. 5-9) that Shapiro fails to disclose such a user control are unpersuasive, especially to the extent that these features are broadly set forth in claims 1 to 3, 9, 10, 12 to 14, 16, 17, 20, and 22. Appellants' argument that Shapiro's user control is "automatic" and not

manual is unconvincing inasmuch as this argument is not commensurate with what is claimed (i.e., the words "manual" or "manually" do not appear in any of claims 1 to 3, 9, 10, 12 to 14, 16, 17, 20, and 22 on appeal).[7]

We agree with the Examiner (Ans. 10) and Appellants (Br. 6) that Shapiro describes positioning a sheet 35 which simulates a user's eye positioning to calibrate the system (FF 6). Shapiro teaches that the sheet may be moved "manually by an operator or by a robot arrangement" (FF 6). Broadly construed, the user control as set forth in varying scope in the claims encompasses a user's manual movement of sheet 35 to calibrate or adjust the stereoscopic parameters.

In addition, when a user turns on the system of Figure 7 to begin normal operation, the user must inherently press a button or other single user input.[8] Similarly, a user must inherently press a button or otherwise signal

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[7] We note that Shapiro does indeed disclose a manual user control 18/19 for making stereoscopic adjustments (FF 6).

[8] *See In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349 (Fed. Cir. 2002) ("Under the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates.").

The rule that anticipation requires that every element of a claim appear in a single reference accommodates situations where the common knowledge of "technologists" is not recorded in a reference, *i.e.*, where technical facts are known to those in the field of invention. *Continental Can Co. v. Monsanto Co., Inc.* 948 F.2d 1264, 1269 (Fed. Cir. 1991). The common knowledge of the technologist would include the technical fact that a stereoscopic system such as that shown in Shapiro's Figure 7 would have an on/off button for user operation, or an on/off button for starting step S1 and the calibration routine shown in Shapiro's Figure 8. Similarly, *In re Graves*, 69 F.3d 1147, 1152 (Fed. Cir. 1995) (citing *In re LeGrice*, 301 F.2d 929, 936 (CCPA 1962)) confirms the longstanding interpretation that the teachings of a reference may be taken in combination with knowledge of the skilled artisan to put the artisan in possession of the claimed invention

the system to begin calibration as indicated at step S1 in the calibration process shown in Figure 8.[9]

Furthermore, should a different user appear before the display in Shapiro (e.g., a child as opposed to an adult as shown in Figs. 12a and 12b), a different eye distance or height must be accounted for in the calibration process, automatic or not. Thus, the user's self-induced movement constitutes a form of user control or input.

Giving claims their broadest reasonable construction in light of the specification as they would be interpreted by one of ordinary skill in the art, we conclude that a proper construction of the terms (i) "a single user control" (claim 1), (ii) "a user input via a single control" (claim 13), and (iii) "a user controller" (claim 22) broadly encompasses the operations of the stereoscopic system shown and described in Shapiro (*see* Figs. 7 and 8 and the accompanying text; FF 6). *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004); *In re Morris*, 127 F.3d 1048, 1053-54 (Fed. Cir. 1997).

Finally, with regard to claims 2, 14, and 22, Appellants argue (Br. 9-10) that Shapiro fails to disclose a plurality of lenticules having parallel axes "extend[ing] transversely" to a plurality of columns and rows of display elements are unpersuasive. The Examiner (Ans. 4-6, 11) is correct that Shapiro teaches this limitation as is broadly recited in claims 2, 14, and 22. Appellants do not define "transversely" in the Specification as originally filed, and we agree with the Examiner (Ans. 11) that one of ordinary skill in

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within 35 U.S.C. § 102 even though the patent does not specifically disclose certain features.

[9] *See supra* n. 8.

the art would understand the term "transversely" to broadly encompass axes that are lying across other axes.

It follows that anticipation has been established by the Examiner because Shapiro teaches each and every limitation of the claimed invention set forth in claims 1, 2, 13, 14, and 22. *Atlas Powder*, 190 F.3d at 1347; *Paulsen*, 30 F.3d at 1478-79; *Verdegaal Bros.*, 814 F.2d at 631. Accordingly, we will sustain the Examiner's anticipation rejection of claims 1, 2, 13, 14, and 22. The anticipation rejection of claims 3, 9, 10, 12, 16, 17, and 20 is likewise sustained because Appellants have not presented any patentability arguments for these claims apart from the arguments presented for claims 1 and 13.

Obviousness

Turning to the obviousness rejections, we agree with the Examiner's findings of fact and conclusions of obviousness with respect to claims 5 to 7, 11, and 18 (Ans. 6-9, 11-12), and adopt them as our own, along with some amplification of the Examiner's explanation of the teachings of Shapiro (*see* FF 3-5). We also add that Appellants' disclosed invention of a single manual user control is at its essence making manual an automatic process/apparatus which is known in the prior art (e.g., Shapiro),[10] which we find to be a product not of innovation but of ordinary skill and common

[10] *See Venner*, 262 F.2d at 95 (holding that replacing a known manual process with an automatic process does not distinguish over the prior art). The corollary is true, i.e., that replacing a known automatic process with a manual process also fails to distinguish over the prior art. *But cf. Leapfrog Ent.*, 485 F.3d at 1161 (concluding there was no clear error in a district court's finding that a processor and related electronics-based method and apparatus was obvious over a prior art mechanical structure-based method and apparatus).

sense (*see KSR*, 550 U.S. at 421), and not distinguishable over the prior art. We will sustain the Examiner's rejection of claims 5 to 7, 11, and 18 for the foregoing reasons and those that follow.

Appellants have not shown that the Examiner erred in determining that Shapiro teaches or suggests the single user control (*see* claim 1 from which claims 5 to 7 and 11 depend) and user input to a single control (*see* claim 13 from which claim 18 depends) limitations. Therefore, Shapiro teaches all of the structural limitations of independent claims 1 and 13 on appeal. A prima facie case of obviousness of the claimed subject matter set forth in dependent claims 5 to 7, 11, and 18 has been established by the Examiner (*see* Ans. 3-12).

With regard to claims 5, 7, and 11, Appellants cannot show non-obviousness by attacking references individually where rejections are based on a combination of references (i.e., Shapiro and Lemelson). *Keller*, 642 F.2d at 426. In the present case, Appellants' argument (Br. 11-12) that Lemelson does not teach adjusting a distance or parameter of a stereoscopic image corresponding to a distance between the eyes of a user is not persuasive since Shapiro was relied upon by the Examiner as teaching this limitation (*see* Ans. 7-9, 12).

With regard to claim 6, Appellants' argument (Br. 12) that the teachings of the reference to Uchiyama fail to cure the noted shortcomings in the teachings of Shapiro is not convincing in light of our findings and conclusions regarding Shapiro (FF 3-5). *Oetiker*, 977 F.2d at 1445.

With regard to the obviousness rejection of claim 18, Appellants argue (Br. 10-11) that (i) a prima facie case of obviousness has not been made because Shapiro fails to teach the user control limitation set forth in

claim 13, from which claim 18 depends, and (ii) it is not well known that the claimed method could be run by a computer program product as asserted by the Examiner. We will sustain the obviousness rejection of claim 18 (i) for the reasons discussed *supra* with respect to the anticipation rejection of claim 13, and (ii) because the Examiner has pointed to concrete evidence (i.e., Starks, which is cited in the Answer at page 12) in support of the findings regarding Official Notice. *See In re Zurko*, 258 F.3d 1379, 1386 (Fed. Cir. 2001) ("the Board [or Examiner] must point to some concrete evidence in the record in support of these findings" (referring to assertions by PTO of facts not of record, such as officially noticed facts) to satisfy the substantial evidence test); *see also In re Berg*, 320 F.3d 1310, 1313, 1315 (Fed. Cir. 2003) (affirming the Board's affirmance of an Examiner's obviousness rejection, which relied upon a noticed fact where appellant did not sufficiently rebut the prima facie case). Furthermore, to store a program for producing and controlling a stereoscopic image on a computer program product is obvious and is not the product of innovation, but of ordinary skill and common sense. *KSR*, 550 U.S. at 421.

Appellants' arguments (Br. 10-12) that the obviousness rejections are based on similar errors as the anticipation rejections (i.e., that the single user control is not taught) are likewise unpersuasive for similar reasons as the anticipation rejection. Appellants have not convincingly rebutted the Examiner's anticipation and obviousness rejections, and have not demonstrated error in the Examiner's findings and/or conclusions.

Appellants have not convincingly demonstrated that the Examiner erred in rejecting claims 5 to 7, 11, and 18. *Kahn*, 441 F.3d at 985-86. For

the foregoing reasons, we will sustain the Examiner's obviousness rejections of claims 5 to 7, 11, and 18.

CONCLUSION OF LAW

Appellants have failed to rebut the Examiner's finding that Shapiro teaches the limitations of claims 1, 13, and 22 of (i) "a single user control" (claim 1), (ii) "a user input via a single control" (claim 13), and (iii) "a user controller" (claim 22) as set forth in the claims on appeal. Thus, Appellants have not shown that the Examiner erred in rejecting each of claims 1 to 3, 9, 10, 12 to 14, 16, 17, 20, and 22 under § 102(b), and as a result thereby also erred in rejecting each of claims 5 to 7, 11, and 18 under § 103(a).

ORDER

The decision of the Examiner to reject claims 1 to 3, 5 to 7, 9 to 14, 16 to 18, 20, and 22 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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